

La Cuna de Aztlan Sacred Sites Protection Circle

Alfredo A. Figueroa
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California Energy Commission
DOCKETED
09-AFC-7C

TN # 69254
JAN 24 2013

January 21, 2013

Raoul Renaud
Hearing Adviser for Palen Solar Project
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: Palen Solar Power Project Amendment: Intervener Status

Dear Raoul,

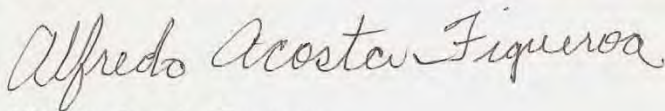
This is our letter of opposition against the Palen Solar Project Amendment. I Alfredo Acosta Figueroa, declare as follows:

- 1) I am a native of the Colorado River and was born in Blythe, California, and an Elder/Historian, Chemehuevi Tribal Sacred Sites Monitor.**
- 2) In 2000, we organized La Cuna de Aztlán Sacred Sites Protection Circle which is comprised of 15 Native American and other members that are dedicated to physically protecting the sacred sites along the Colorado River.**
- 3) On February 5, 2008 our group La Cuna de Aztlán Sacred Sites Protection Circle was given a Memorandum of Understanding (MOU) by the Bureau of Land Management (BLM) together with the Southern Low Desert Resource Conservation and Development Council to partnership for the protection of the cultural resources. The MOU included the world famous Blythe Giant Intaglios and over 300 geoglyphs and hundreds of scared sites that are located along the Colorado River from Needles, CA in the north down to Yuma, AZ in the south. (Attachment**

1: Copy of MOU & Resolution of the Chemehuevi Indian Tribal Council supporting the MOU)

- 4) For the past 58-years we have investigated the area along the I-10 corridor in Eastern Riverside County where the Palen Solar Project is proposed.**
- 5) If the Palen Solar Project is approved it will destroy the main trail that comes down from the Palen Mountains and meets with the east/west main trail that comes from the Mule Mountains and goes to Corn Springs and Aztec Well. (Attachment 2: Francis J. & Patricia H. Johnston's map, University of California Archaeological Survey April 1, 1957.)**
- 6) The Palen Solar project will also destroy some of the Poorwill Bird hibernating sites and pristine desert. (Attachment)**
- 7) The Palen Solar project is also aligned with Eagle Mountain's Dragon Wash in the west and the Ripley Intaglio in the east.**
- 8) We have already experienced the great devastation of pristine land and destruction of sacred sites and cremation sites that took place when they built the Genesis Solar project. As well as the destruction of fox habitat.**
- 9) The Chuckwalla, Eagle, Palen, Granite, McCoy, Mule, Little Maria and Big Maria Mountains are all interrelated with the Creation Story based on the images in the mountains, trails, petroglyphs, geoglyphs, pictographs and overall as they relate to the Mexica Codices such as the Boturini, Aubin, Borgia and Vaticano which includes are local native cultural cosmic traditions.**

This is why the California Energy Commission should not continue with licensing these projects along the I-10 Corridor. For further information please feel free to contact us.



**Alfredo Acosta Figueroa
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**Amendment No. 1 to Memorandum of Understanding
Between
United States Department of the Interior
Bureau of Land Management
and the
Southern Low Desert Resource Conservation and Development Council**

This Amendment No. 1 modifies the current Memorandum of Understanding (MOU) that was signed by the Bureau of Land Management (BLM) and the Southern Low Desert Resource Conservation and Development Council (Council) in July 2006 to include the La Cuna de Aztlan Sacred Sites Protection Circle Advisory Committee (LCASSPC) and the Blythe Area Chamber of Commerce and Tourist Information Center (Chamber) in the partnership for protection of cultural resources in the BLM Yuma Field Office planning area.

Section "II. Definitions" is amended as follows:

- A. BLM: The Bureau of Land Management's Yuma Field Office, which has management responsibility for the public land area covered under this MOU.
- B. Council: The Southern Low Desert Resource Conservation and Development Council (a 501(c)(3) non-profit / non-governmental conservation and community development organization).
- C. LCASSPC: La Cuna de Aztlan Sacred Sites Protection Circle Advisory Committee. A 501(c)(3) nonprofit organization that is comprised of 15 indigenous and culturally aware individuals who are dedicated to physically protecting the Blythe Giant Intaglios, other geoglyphs, and several hundred sacred sites that are located along the Colorado River from Needles, California, to Yuma, Arizona.
- D. Chamber: The Blythe Area Chamber of Commerce and Tourist Information Center. Provides information to visitors and the community about the Blythe Intaglios and other important cultural resources in the vicinity of Blythe, California.
- E. MOU signatories: Refers to all agencies and organizations that have a formalized partnership through the July 2006 MOU and associated amendments.

Section "III. Statement of MOU Purpose" is amended as follows:

This Memorandum of Understanding (MOU) will provide a means for the ~~BLM the Council~~ MOU signatories to work in partnership to enhance cultural resources protection, conservation, and interpretation efforts on BLM lands within the Yuma Field Office's jurisdiction and the Southern Low Desert RC&D area. The purpose of this MOU is to assist the BLM with its responsibilities under Section 110 of the National Historic Preservation Act of 1966, as amended.

The ~~BLM and the Council~~ MOU signatories agree that all projects conducted under this MOU will be carried out by qualified specialists. Contractors hired for projects must meet

BLM-standards. Projects that may be conducted under this MOU include but are not limited to cultural resources survey, archaeological site recordation, National Register of Historic Places nominations, ethnographic studies with interested Native American tribes, design and installation of site protection and interpretation measures, and the production of interpretive materials for the public. All projects will be coordinated with and approved by the BLM.

The ~~BLM and the Council~~ MOU signatories have a common objective of helping to bring about the conservation, development, and wise use of archaeological and historical resources in the southeastern California desert area. Therefore, ~~both the BLM and the Council~~ the MOU signatories deem this effort of mutual benefit to ~~both~~ all parties. We hereby agree as follows:

A. The Council agrees to:

1. Work cooperatively with BLM to coordinate and facilitate the development of plans for the conservation, protection, and interpretation of desert resources. Specifically, the Council agrees to diligently work towards the immediate and future protection of cultural resources, including the Blythe Intaglios, for the public good.
2. Assist with any environmental documents deemed necessary for the completion of joint projects within the mutual boundary of the Council and BLM.
3. Provide a public outreach program to encourage and promote active public participation in the protection of desert resources.
4. Assist in the solicitation of funds from outside organizations and agencies to complete agreed upon projects or work items within the mutual boundaries of the BLM and the Council.

B. LCASSPC agrees to:

1. Work cooperatively with BLM to coordinate and facilitate the development of plans for the conservation, protection, and interpretation of desert resources and sacred sites. Specifically LCASSPC agrees to diligently work toward the immediate and future protection of cultural resources, including the Blythe Intaglios, for the good of the future generations and the public good.
2. Assist with any environmental documents deemed necessary for the completion of joint projects.
3. Provide a public outreach program to encourage and promote active public participation in the protection of desert resources.
4. Assist in the solicitation of funds from outside organizations and agencies to complete agree upon projects or work items.

C. The Chamber agrees to:

1. Work cooperatively with BLM to coordinate and facilitate the development of plans for the conservation, protection, and interpretation of desert resources. Specifically, the Chamber agrees to diligently work toward the immediate and future protection of cultural resources, including the Blythe Intaglios, for the public good.
2. Provide a public outreach program to encourage and promote active public participation in the protection of desert resources.
3. Assist in the solicitation of funds from outside organizations and agencies to complete agreed upon projects or work items.

D. BLM agrees to:

1. ~~Work cooperatively with the Council on projects of mutual benefit to BLM and the Council the MOU signatories.~~
2. ~~Provide technical and planning assistance for projects of mutual benefit to the BLM and the Council MOU signatories.~~
3. ~~Initiate any environmental assessment documents deemed necessary for the completion of any agreed upon joint projects within the mutual boundaries of the BLM and the Council.~~
4. ~~Assist with the preparation of statements of work and hiring of contractors to complete the agreed upon projects.~~
5. ~~Cooperate and assist (when appropriate) with seeking funds to complete agreed upon joint projects.~~

Section "IV. Terms of the MOU" is amended as follows:

A. ~~The following individuals are designated as the liaison between the BLM and the Council MOU signatories.~~

1. Bureau of Land Management
Yuma Field Office
~~Rebecca Heick~~-James T. Shoaff, Field Manager
2555 E Gila Ridge Road
Yuma, AZ 85365
PH: (928) 317-3200
FX: 928-317-3250
2. Southern Low Desert Resource Conservation & Development Council
Thomas Burgin, President
53990 Enterprise Way, 6B

Coachella, CA 92236
PH: 760-391-9002
FX: 760-391-9813

3. La Cuna de Aztlan Sacred Sites Protection Circle Advisory Committee

Alfredo A. Figueroa
Escuela de la Raza Unida
137 N. Broadway
Blythe, CA 92225
PH: (760) 922-6442
E-mail: lacunadeaztlan@aol.com

4. Blythe Area Chamber of Commerce and Tourist Information Center

Jim Shipley, COO
201 S Broadway
Blythe, CA 92225
PH: 760-922-8166
FX: 760-922-4010
E-mail: blythecoc@yahoo.com

- B. Nothing herein is intended to conflict with existing BLM, Department of the Interior orders, or Council directives. If any terms or conditions of this MOU are inconsistent with existing BLM orders or Council directives, those portions of this MOU are invalid.

By signing below, the partners show their agreement to MOU Amendment No. 1 as described in this document.

Thomas Burgin, President of the Southern Low Desert Resource Conservation and Development Council.

Signed: Thomas Burgin

Date MAR. 6, 2008

Alfredo Figueroa, La Cuna de Aztlan Sacred Sites Protection Circle Advisory Committee.

Signed: Alfredo Figueroa

Date FEB. 15, 2008

Jim Shipley, Blythe Area Chamber of Commerce and Tourist Information Center.

Signed: Jim Shipley

Date FEB 29, 2008

James T. Shoaff, Field Manager of the Bureau of Land Management Yuma Field Office.

Signed: James T. Shoaff

Date March 14, 2008



Chemehuevi Indian Tribe

CHEM.R. 06-07-29-02

A RESOLUTION OF THE TRIBAL COUNCIL OF THE CHEMEHUEVI INDIAN TRIBE SUPPORTING THE MEMORANDUM OF UNDERSTANDING BETWEEN THE SACRED SITES PROTECTION CIRCLE, THE SOUTHERN LOW DESERT RESOURCE CONSERVATION AND DEVELOPMENT COUNCIL, AND THE BUREAU OF LAND MANAGEMENT FOR THE PROTECTION AND PRESERVATION OF THE 'BLYTHE' INTAGLIOS.

WHEREAS, the Chemehuevi Indian Tribe (the Tribe) is a federally recognized Indian Tribe recognized by the Secretary of the Interior maintaining a government-to-government relationship with the United States; and

WHEREAS, the Tribe is organized under the provisions of the Indian Reorganization Act, 25 U.S.C. Sec. 476, with a written constitution vesting in the Chemehuevi Tribal Council (the Tribal Council) the authority to govern the Tribe; and

WHEREAS, the Tribe is the beneficial owner of the Chemehuevi Indian Reservation, the title to which is owned by the United States government in trust for the Tribe (Reservation); and

WHEREAS, the Tribe still holds all ancestral, historical land use areas within our trust and stewardship and seeks the protection and preservation of same; and

WHEREAS, the 'Blythe' Intaglios fall within our ancestral and historical land use area we wish to protect and preserve them for future generations, and

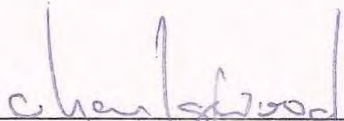
WHEREAS, the Sacred Sites Protection Circle, the Southern Low Desert Resource Conservation and Development Council and the Bureau of Land management have entered into a Memorandum of Understanding to protect and preserve the 'Blythe' Intaglios and seek Tribal support;

NOW THEREFORE BE IT RESOLVED that the Chemehuevi Tribal Council approves and supports the MOU between the Sacred Sites Protection Circle, the Southern Low Desert Resource Conservation and Development Council and the Bureau of Land Management for the protection and preservation of the known, identified intaglios on the lower Colorado River and any future intaglios that may be discovered.

CERTIFICATION

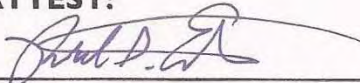
The foregoing Resolution was adopted at a duly convened meeting of the Chemehuevi Tribal Council with a quorum present held on the 29th day of July, 2006, by the following vote:

AYES: 6
NOES: 0
ABSENT: 3
ABSTAIN: 0



Charles F. Wood, Tribal Chairman
Date Aug 11, 2006

ATTEST:



Ronald D. Escobar, Sr., Secretary/Treasurer
Date August 9, 2006



Chemehuevi Indian Tribe

P. O. Box 1976 • HAVASU LAKE, CA 92363 • (760) 858-4219 • FAX: (760) 858-5400

Kevin Hunt
Project Manager
SWCA Environmental Consultants
625 Fair Oaks Avenue, Suite 190
South Pasadena, CA 91030

Dear Mr. Hunt,

The Chemehuevi have a long and well documented history in the desert areas of southern California, southern Nevada, and northern and western Arizona. In the late 1800's the vast majority of this area was declared public domain by the US Federal Government and the various Tribes that had traditionally used this land lost the ability to freely use it as their ancestors once had.

The Chemehuevi were just one of the nations of people whose ancestors freely used the area in question. At one time we would have called the area between the Tehachapi Mountains to the Colorado River and from Death Valley to nearly Yuma, AZ as our ancestral territory. In addition, we would claim from Ash Meadows and the Pahrump area through Las Vegas and into the Muddy and Virgin Rivers area and on into the Valley of Fire.

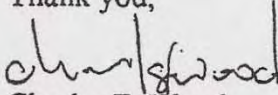
The particular areas that you speak of are of the utmost importance to the Chemehuevi, Uto-Aztecan and Mexica/Aztecan peoples. All along the length of the Areas of Potential Effects are found the "Blythe Giant Intaglios". While the best known of the intaglios might be miles away, there are in fact approximately 300 intaglios in the area ranging from 150 to 10,000 years old; the vast majority remain unmarked and unprotected.

The Chemehuevi Indian Tribe supports the Memorandum of Understanding between the Sacred Sites Protection Circle, the Southern Low Desert Resource Conservation and Development Council and the Bureau of Land Management for the protection and preservation of the known, identified intaglios on the lower Colorado River and any future intaglios that may be discovered.

Intaglios are alignments of rocks with cleared areas in between making geoglyphs (pictures) on the ground. We are concerned because some of these may be square feet in size; while others may be hundreds of square feet in size and are often and easily over-looked from ground level. We would emphasize the need for an aerial survey as well as a ground-level survey of the area before proceeding with the project.

While we no longer have intimate daily contact with the specific areas in question, we would like to request notification if substantial artifacts, intaglios or graves should be found.

Thank you,


Charles F. Wood
Chairman

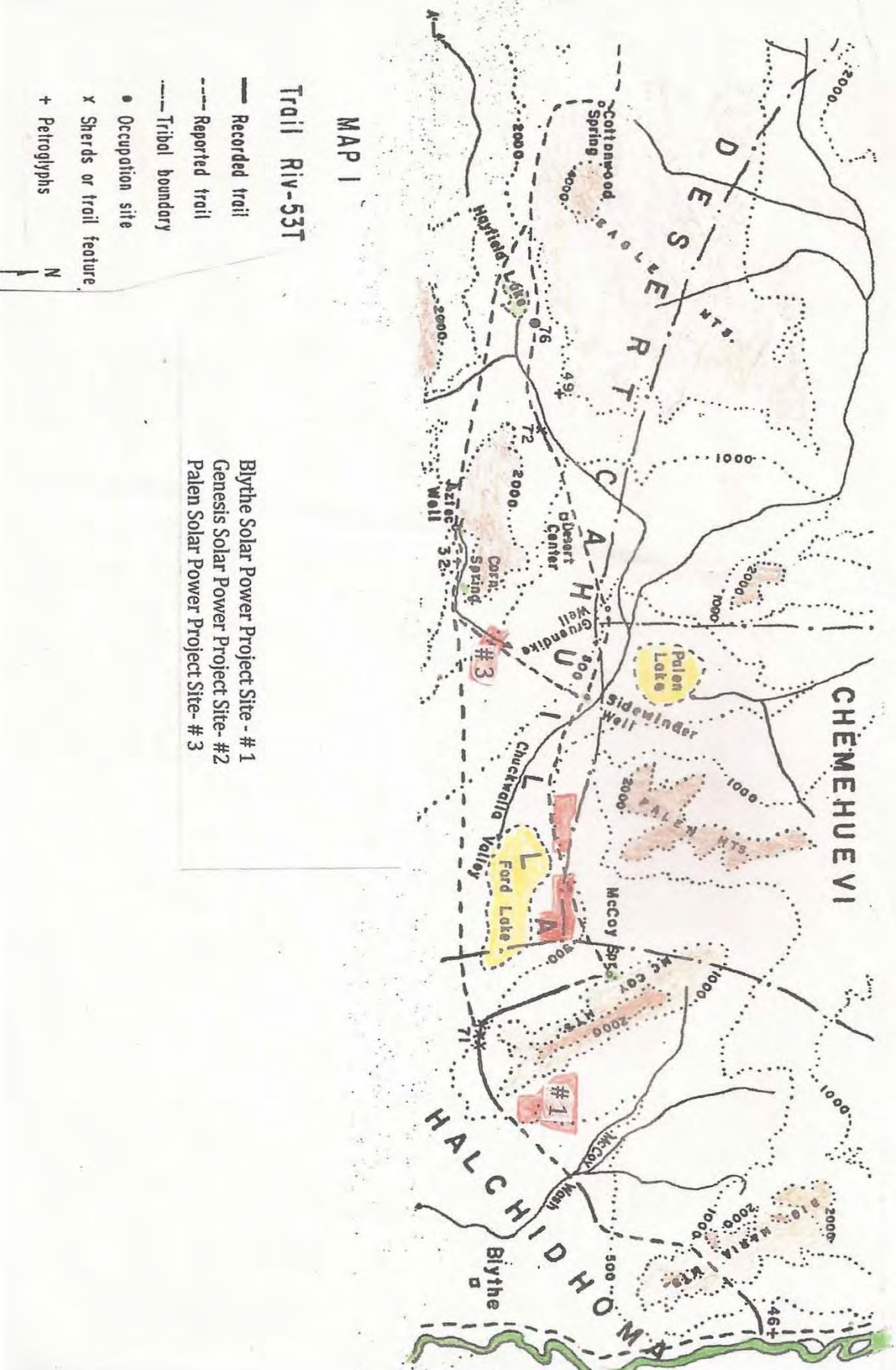
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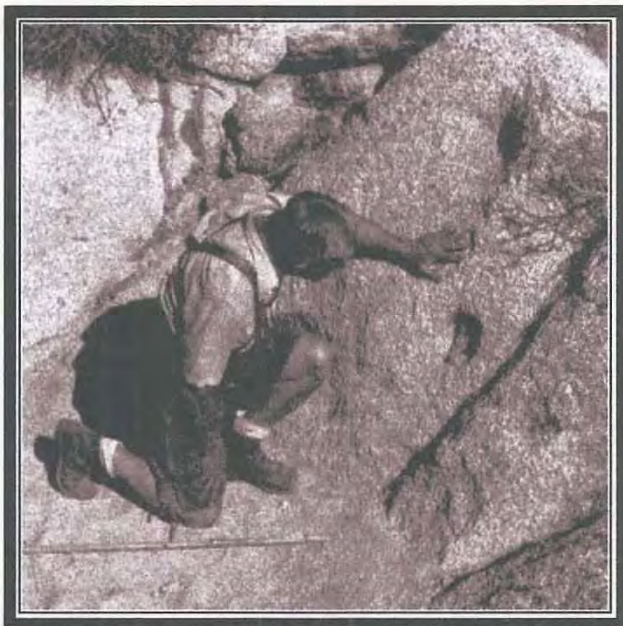
Alfredo Acosta Figueroa
Sacred Sites Protection Circle
424 N. Corlton
Blythe, CA 92225

Southern Low Desert Resource Conservation & Development Council
Thomas Burgin, President
53990 Enterprise Way, 6B
Coachella, CA 92236

Bureau of Land Management, Yuma Field Office
Rebecca Heick, Field Manager
2555 E. Gila Ridge Road
Yuma, AZ 85365

Francis J. & Patricia H. Johnston's Map: University of California Archaeological Survey, April 1, 1957





**Dr. Jaeger observing the hibernating poorwill in its
hibernaculum
sometime in 1947 - photographer unknown**

**Photograph courtesy of
Dr. Raymond Ryckman**

Fifty Years Ago Today In Riverside County: The Hibernating Poorwill by Douglas Eddleman

Two current events, the new exhibit at our Riverside Municipal Museum ("Edmund C. Jaeger, Desert Naturalist") and the publication of

Son Of The Living Desert, Edmund C. Jaeger, 1887 - 1983,

the biography by Raymond Ryckman and James Zackrison, celebrate the life and works of Dr. Edmund C. Jaeger, the notable desert biologist, Professor of Biology at Riverside Junior College, and former Curator of Botany at the Riverside Municipal Museum.

Dr. Jaeger is well known for his numerous books and articles dealing with the biology and natural history of the desert, but perhaps his greatest contribution to biological knowledge was his discovery and definitive scientific description of hibernation in a bird, Nuttall's Poorwill. This article discusses several issues in connection with the discovery not previously addressed in print.

In his article in *Desert Magazine* for November, 1954, Dr. Jaeger recounts the discovery as follows:

"In November of 1946 Milton Montgomery and Jerry Schulte accompanied me on a Christmas vacation trip to the picturesque Chuckawalla Mountains, north of Salton Sea and west of the Colorado River in California. Little did we realize that it was to be a journey momentous in the history of ornithology. It was on this holiday outing that by merest chance, we found in a niche in granite rock that unique specimen of Nuttall's Poor-will which was to make possible the discovery of the phenomenon of hibernation in birds".

As the three hiked down a small desert wash, one called ahead to Dr. Jaeger, who returned to see his friend pointing to a small bird, which he recognized as a Nuttall's Poorwill, nestled in a rounded, shallow hole in the vertical face of a granite boulder, about 2.5 feet above the bed of the wash. When Dr. Jaeger first took the bird in his hand, he assumed that it was dead. Then as he examined it closely, he noticed a slow movement of the eyelid, indicating that it was alive. It is a well-known fact that discovery favors those who are prepared. It was his previous training and education that led Jaeger to soon comprehend the significance of this experience. He suspected the bird might be in a state of winter torpor, or hibernation.

All animals are adapted to metabolize, that is, carry on their life processes, within a rather narrow range of internal body temperature. Most animals have to depend on the absorption of heat from a suitable environmental temperature to activate their physiological functions. These so-called "cold blooded" animals are more correctly referred to as poikilotherms, or heterotherms. This includes all of the invertebrates as well as the fish, amphibians, and reptiles. Therefore, on cold mornings, we see sluggish poikilotherms such as insects and lizards positioning themselves in warm sunlight to absorb the radiant energy of the sun before they are capable of much activity. Two groups of animals, the birds and mammals, generally do not depend on environmental temperature

for activation. These homoiotherms, by virtue of aerobic respiration and other cellular metabolic processes, are able to maintain a constant normal temperature that is optimal for their functioning. This ability of the homoiotherms requires a constant source of suitable food to provide the necessary energy, even during winter periods of cold temperatures.

During the winter, there is usually a drastic shortage or absence of food in temperate climates. This results not just from colder temperatures, but also from decreased photoperiod, or daylength. Some poikilotherms survive the winter by lapsing into a dormant state in which all of their metabolic activities decrease to the point at which a frequent input of food is not required, and the body temperature drops to that of the environment. Some, such as many of the insects, do not survive the winter, but die, leaving their eggs to overwinter in a dormant state of winter diapause.

As for the homoiotherms, many birds migrate to subtropical or tropical climes where food is abundant. Most mammals, because of their ability to find adequate food and to maintain a constant temperature, remain within their usual habitat. Some, such as tree squirrels and bears, exhibit a period of inactivity during which they sleep for long periods, but awaken to search for food during warming interludes. Some have previously stored food in their dens or nests, or in layers of winter fat. But other mammals, and at least several birds, escape the necessity of acquiring food during winter by lapsing into a profound state of dormancy known as hibernation.

By definition, hibernation can occur only in homoiotherms. It consists of pronounced alterations of the animal's metabolism, including marked decreases in respiration, lowered temperature (the body temperature plummets to approximate the environmental temperature), greatly slowed circulation of blood, and a limited ability to contract skeletal muscles. In other words, homoiotherms that hibernate become poikilothermic. Only this extreme condition in homoiotherms is correctly recognized as true hibernation.

It was Edmund Jaeger's frequent exposure to the natural elements of the desert, its flora and fauna, and his constant quest for learning the remarkable secrets of the biological communities of the desert that predisposed him for discovery. But it was his academic preparation and his highly-developed analytical ability that led him to perceive the possibility that the poorwill was hibernating. Discovery favors those who are prepared. And yet, let us not forget Jaeger's willingness to share with others. It was his sharing a winter's walk in the desert with friends that made possible the presence of the young man who actually spotted the bird and called to the professor to return to the site. So, in addition to discovery favoring the prepared, Jaeger's constant quest, his analytical frame of mind, and pure coincidence (in Jaeger's words, "... merest chance"), all coincided at a time and place that initiated what became a four-year study of hibernation in the poorwill.

After carefully placing the poorwill back in its hibernaculum, the three came back to Riverside. Ten days later, Jaeger returned with his friend Lloyd Mason Smith, and they brought a balance and a thermometer, wondering if the bird would still be in place. It was. Its body weight was recorded, and its temperature was taken. It was considerably lower than the temperature of a bird during normal metabolic activities.

Following the initial discovery, Jaeger returned every two weeks to observe, weigh, and take the temperature of the bird. In late February, with warming of the weather, the poorwill disappeared. Jaeger hoped this indicated that the bird had ended its hibernation and flown away. However, there was the possibility it had been taken by a predator; its niche was exposed, and it was common to find coyote tracks on the sandy floor of the wash.

In fact, a poorwill returned to the same site the following year. It was assumed to be the same specimen, and it probably was, but this is not a certainty. The second year, the bird was banded, and it is certain that the poorwill Dr. Jaeger studied the subsequent two years was the same specimen.

The data recorded indicated a state of true hibernation, for during each season there was a slow and consistent loss of weight, and the cloacal temperature averaged about 65 degrees Fahrenheit, whereas the normal temperature for this species is about 106 degrees.

During this time, Jaeger learned that the Hopi Indian name for Nuttall's Poorwill, *Hölchko*, means "The Sleeping One", indicating a possible pre-Columbian understanding of the bird's habits among native Americans.

* * * * *

By October 16, 1804, Meriwether Lewis, William Clark and the "Corps Of Discovery" had reached a location on the Missouri River near the present community of Emmonsburg, North Dakota. On this particular day, as he often did, Lewis hiked a path parallel to the northern bank of the river. He glanced down to see in the trail, at his feet, a bird that neither flew nor scampered for shelter. In his daily log, Lewis identifies the bird as a "goatsucker", that is, a member of the Family Caprimulgidae, which includes poorwills, whip-poor-wills, nighthawks and European nightjars, birds that make their living by catching night-flying insects on the wing. Reaching down, he picked up the bird, and kept it for three days.

On the following day, Clark hiked the trail as Lewis commanded one of the canoes. Clark similarly came upon a bird he identified as a "whipperwill" (*sic*), and he too picked up the creature. We now know that both birds were specimens of Nuttall's Poorwill. It is obvious that these torpid birds that made no attempt to escape, were hibernating.

In his notes, Lewis states that when he picked up the bird, "It appeared to be passing into the dormant state". His log entry for Oct. 18:

"on (*sic*) the 18th the mercury was at 30^{a.o.} (above zero?) the bird could scarcely move. I run (*sic*) my penknife into its body under the wing and completely destroyed its lungs and heart yet it lived upwards of two hours. this fanominon (*sic*) I could

not account for unless it proceeded from want of circulation of the blood."

Lewis' impromptu experiment with the bird demonstrated the typical response given by a hibernating animal, including a marked decrease of blood circulation and respiration. Lewis weighed the bird and wrote a description of it, but he did not publish the description nor did he assign a scientific name for the bird later.

In view of the numerous plants and animals given their first scientific description by Meriwether Lewis during the expedition, it is difficult to understand why he did not describe the poorwill as a new species. Perhaps he did not realize it was new to science. Nuttall's Poorwill (*Phalaenoptilus nuttallii*), a close relative of the eastern whip-poor-will, was finally named and described in 1839 by John James Audubon.

In his book *The Natural History of the Lewis and Clark Expedition*, Raymond Darwin Burroughs suggests that if biologists had read the Journals of the Lewis and Clark Expedition, they would have known about hibernation in birds about 140 years before Jaeger discovered it in 1946. Jaeger was not aware of Lewis and Clark's historic precedence concerning hibernation of the poorwill. But according to Oscar Clarke, he was acquainted with Wilson C. Hanna, a resident of the Riverside/San Bernardino area. Hanna, a chemist for the Colton Portland Cement Company, was an avid oölogist. His outstanding collection of birds' eggs and nests is now held by the San Bernardino County Museum. In 1917, he published a paper in *The Condor* that deals with avian hibernation. During an extremely cold wave in January of 1913, Hanna removed eight white-throated swifts from a crevice in Slover Mountain (in Colton, CA) that "... seemed to be roosting in a dazed or numb state". According to Hanna, someone suggested to him that the birds were possibly hibernating. In his closing comment on the issue, Hanna says, "This raises a very interesting question, as it seems possible that these birds have intermittent hibernation periods. The facts are that these birds are not observed for many days in the coldest weather, yet are found to be plentiful within the rocks, in a dormant state".

In his article in *Desert Magazine* and in one of his papers in the scientific journal *The Condor*, Jaeger referred to several letters he had received after his first *Condor* paper and after his article in *The National Geographic Magazine*, in which writers related their experiences supporting the concept of hibernation in the poorwill. One correspondent was Aldous Huxley who related an experience when he and his brothers, during a winter vacation while in England, came upon an apparently hibernating European Nightjar, a bird in the same family as Nuttall's Poorwill. In 1950 Jaeger published a brief note in *The Condor* giving the basic details he had learned from Aldous Huxley.

Previously, in 1947, W.L. McAtee wrote a paper entitled "Torpidity in Birds" which was published in *The American Midland Naturalist*. McAtee cites 152 references, the earliest from 1495, with entries through each subsequent century, dealing with hibernation in birds, mostly swallows, chimney swifts, and cuckoos. One citation was a paper entitled "Temporary Poikilothermy in Birds", published in 1939 in the journal *Nature*, authored by J.S. Huxley (brother of Aldous), C.S. Webb and A.T. Best. When Aldous Huxley communicated with Dr. Jaeger, did he not inform Jaeger about his brother's paper? Perhaps not. Did Jaeger and Hanna, during their many visits, not discuss Hanna's experience with the hibernating white-throated swifts? Perhaps not. At least, until very recently, this would seem to be the case.

In their book *Son Of The Living Desert: Edmund C. Jaeger 1887-1983*, Ryckman and Zackrisson (1998) include verbatim a talk presented by Jaeger to the Fortnightly Club of Redlands, California, on March 29, 1973. Entitled "Long, Long Before Rip Van Winkle", the authors discovered this manuscript in the A.K. Smiley Library of Redlands, California (Call No. Fo 591.5 J17L). In addition to providing a current update to his colleagues concerning the scientific nature of hibernation, Jaeger included the following statement which perhaps somewhat clarifies his position on the issue at hand:

"It was until very recently stated that true hibernation, as

contrasted to short periods of diurnal torpidity, was known among every major group of animals except birds. So it was said even up to a very recent edition of the Encyclopedia Britannica and other major reference works, such as the 1950 edition of Chamber's Encyclopedia published in England. Incidentally, it may be said that a sort of hibernation had been suspected in birds, but no definite observations had been made.

"Wilson C. Hanna (who lived in Colton, California), during a cold spell in 1913 (one of Southern California's worst), found eight swifts in a crevice of Slover Mountain. He took them out of the crevice '... in a dazed and numb state'. He also found other birds in the rock crevices in the same torpid state. His conclusions, based only on these superficial observations were that '... it seemed possible that these birds may have intermittent hibernation because they did not appear flying about for many days during the coldest weather'.

As far as I can discover, this was the first and only occasion that Dr. Jaeger acknowledged Hanna's experience and knowledge relative to hibernation in birds. Even here, he does not mention Hanna's paper in "The Condor" that was published in 1917.

It seems strange to a biological scientist that Dr. Jaeger's writings about poorwill hibernation include no list of references nor indication that he reviewed the literature on the subject. It is possible that because of the novelty of his discovery he assumed that there was no literature to review. On the other hand, if he were aware of any of the literature, perhaps he thought it was merely anecdotal and not relevant to the scientific evidence that he was presenting. In the passage quoted above from "Long, Long Before Rip Van Winkle", Jaeger states that Hanna's conclusions were based solely on superficial evidence. He therefore could have reasoned it was not worthy of citation. In his Desert Magazine article, Jaeger stated that his work constituted the first concrete evidence for avian hibernation, and in general, the scientific community

has accepted this assertion.

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SELECTED BIBLIOGRAPHY

Ambrose, Stephen E. 1996. *Undaunted Courage: Meriwether Lewis, Thomas Jefferson, and the Opening of the American West*. Simon and Schuster, New York

Burroughs, Raymond Darwin, (Ed.) 1995. *The Natural History of the Lewis and Clark Expedition*. Michigan State University Press, East Lansing

Hanna, Wilson C. 1917. Further notes on the white-throated swifts of Slover Mountain. *The Condor* 19(1):3-8

Huxley, J.S., C.S. Webb and A.T. Best 1939. Temporary Poikilothermy in Birds. *Nature* (London) 143:683-684

Jaeger, Edmund C. 1948. Does the poor-will "hibernate"? *The Condor* 50 (1):45-46

Jaeger, Edmund C. 1949. Further observations on the hibernation of the poor-will. *The Condor* 51(3): 105-109

Jaeger, Edmund C. 1950. Record of the European Nightjar in a State of Stupor. *The Condor* 52(2):90-91

Jaeger, Edmund C. 1953. Poorwill Sleeps Away The Winter. *The National Geographic Magazine*. 103(2):273-280

Jaeger, Edmund C. 1954. On Desert Trails with a Naturalist. VII. Bird That "Sleeps" All Winter. *Desert Magazine* 17(11):21-22

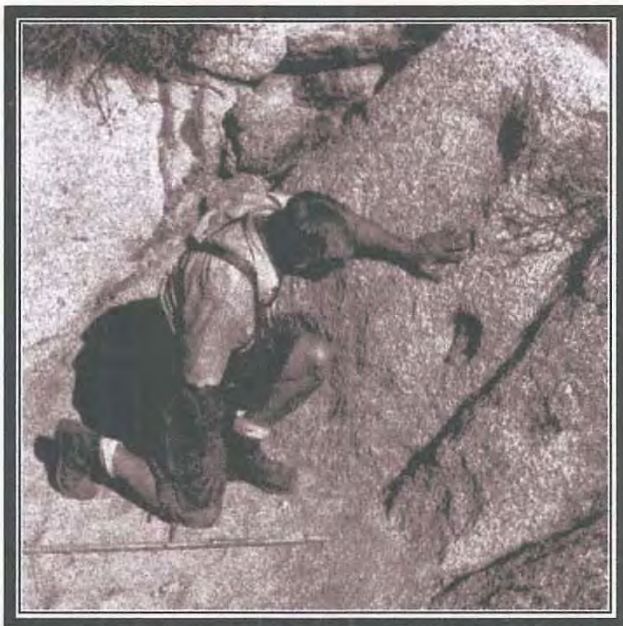
Jaeger, Edmund C. 1973. "Long, Long Before Rip Van Winkle". A paper delivered to the Fort-nightly Club of Redlands, California, March 29, 1973. Manuscript. A.K. Smiley Library, Redlands, California. (Fo 591.5 J17L).

McAtee, W.L. 1947. Torpidity in Birds. *The American Midland Naturalist* 38:191-206

Ryckman, Raymond E. and James L. Zackrison. 1998. *Son of the Living Desert: Edmund C. Jaeger 1887 - 1983: Ecologist, Educator, Environmentalist, Biologist, and Philanthropist*. Published by the authors, Loma Linda University, Loma Linda, CA. (ISBN 0-9663-5630-6)

Thwaites, Reuben Gold, (1904), 1959. *Original Journals of the Lewis and Clark Expedition: 1804-1806*. Vol. 1. Antiquarian Press, Ltd. New York

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**Dr. Jaeger observing the hibernating poorwill in its
hibernaculum
sometime in 1947 - photographer unknown**

**Photograph courtesy of
Dr. Raymond Ryckman**

Fifty Years Ago Today In Riverside County: The Hibernating Poorwill by Douglas Eddleman

Two current events, the new exhibit at our Riverside Municipal Museum ("Edmund C. Jaeger, Desert Naturalist") and the publication of

Son Of The Living Desert, Edmund C. Jaeger, 1887 - 1983,

the biography by Raymond Ryckman and James Zackrison, celebrate the life and works of Dr. Edmund C. Jaeger, the notable desert biologist, Professor of Biology at Riverside Junior College, and former Curator of Botany at the Riverside Municipal Museum.

Dr. Jaeger is well known for his numerous books and articles dealing with the biology and natural history of the desert, but perhaps his greatest contribution to biological knowledge was his discovery and definitive scientific description of hibernation in a bird, Nuttall's Poorwill. This article discusses several issues in connection with the discovery not previously addressed in print.

In his article in *Desert Magazine* for November, 1954, Dr. Jaeger recounts the discovery as follows:

"In November of 1946 Milton Montgomery and Jerry Schulte accompanied me on a Christmas vacation trip to the picturesque Chuckawalla Mountains, north of Salton Sea and west of the Colorado River in California. Little did we realize that it was to be a journey momentous in the history of ornithology. It was on this holiday outing that by merest chance, we found in a niche in granite rock that unique specimen of Nuttall's Poor-will which was to make possible the discovery of the phenomenon of hibernation in birds".

As the three hiked down a small desert wash, one called ahead to Dr. Jaeger, who returned to see his friend pointing to a small bird, which he recognized as a Nuttall's Poorwill, nestled in a rounded, shallow hole in the vertical face of a granite boulder, about 2.5 feet above the bed of the wash. When Dr. Jaeger first took the bird in his hand, he assumed that it was dead. Then as he examined it closely, he noticed a slow movement of the eyelid, indicating that it was alive. It is a well-known fact that discovery favors those who are prepared. It was his previous training and education that led Jaeger to soon comprehend the significance of this experience. He suspected the bird might be in a state of winter torpor, or hibernation.

All animals are adapted to metabolize, that is, carry on their life processes, within a rather narrow range of internal body temperature. Most animals have to depend on the absorption of heat from a suitable environmental temperature to activate their physiological functions. These so-called "cold blooded" animals are more correctly referred to as poikilotherms, or heterotherms. This includes all of the invertebrates as well as the fish, amphibians, and reptiles. Therefore, on cold mornings, we see sluggish poikilotherms such as insects and lizards positioning themselves in warm sunlight to absorb the radiant energy of the sun before they are capable of much activity. Two groups of animals, the birds and mammals, generally do not depend on environmental temperature

for activation. These homoiotherms, by virtue of aerobic respiration and other cellular metabolic processes, are able to maintain a constant normal temperature that is optimal for their functioning. This ability of the homoiotherms requires a constant source of suitable food to provide the necessary energy, even during winter periods of cold temperatures.

During the winter, there is usually a drastic shortage or absence of food in temperate climates. This results not just from colder temperatures, but also from decreased photoperiod, or daylength. Some poikilotherms survive the winter by lapsing into a dormant state in which all of their metabolic activities decrease to the point at which a frequent input of food is not required, and the body temperature drops to that of the environment. Some, such as many of the insects, do not survive the winter, but die, leaving their eggs to overwinter in a dormant state of winter diapause.

As for the homoiotherms, many birds migrate to subtropical or tropical climes where food is abundant. Most mammals, because of their ability to find adequate food and to maintain a constant temperature, remain within their usual habitat. Some, such as tree squirrels and bears, exhibit a period of inactivity during which they sleep for long periods, but awaken to search for food during warming interludes. Some have previously stored food in their dens or nests, or in layers of winter fat. But other mammals, and at least several birds, escape the necessity of acquiring food during winter by lapsing into a profound state of dormancy known as hibernation.

By definition, hibernation can occur only in homoiotherms. It consists of pronounced alterations of the animal's metabolism, including marked decreases in respiration, lowered temperature (the body temperature plummets to approximate the environmental temperature), greatly slowed circulation of blood, and a limited ability to contract skeletal muscles. In other words, homoiotherms that hibernate become poikilothermic. Only this extreme condition in homoiotherms is correctly recognized as true hibernation.

It was Edmund Jaeger's frequent exposure to the natural elements of the desert, its flora and fauna, and his constant quest for learning the remarkable secrets of the biological communities of the desert that predisposed him for discovery. But it was his academic preparation and his highly-developed analytical ability that led him to perceive the possibility that the poorwill was hibernating. Discovery favors those who are prepared. And yet, let us not forget Jaeger's willingness to share with others. It was his sharing a winter's walk in the desert with friends that made possible the presence of the young man who actually spotted the bird and called to the professor to return to the site. So, in addition to discovery favoring the prepared, Jaeger's constant quest, his analytical frame of mind, and pure coincidence (in Jaeger's words, "... merest chance"), all coincided at a time and place that initiated what became a four-year study of hibernation in the poorwill.

After carefully placing the poorwill back in its hibernaculum, the three came back to Riverside. Ten days later, Jaeger returned with his friend Lloyd Mason Smith, and they brought a balance and a thermometer, wondering if the bird would still be in place. It was. Its body weight was recorded, and its temperature was taken. It was considerably lower than the temperature of a bird during normal metabolic activities.

Following the initial discovery, Jaeger returned every two weeks to observe, weigh, and take the temperature of the bird. In late February, with warming of the weather, the poorwill disappeared. Jaeger hoped this indicated that the bird had ended its hibernation and flown away. However, there was the possibility it had been taken by a predator; its niche was exposed, and it was common to find coyote tracks on the sandy floor of the wash.

In fact, a poorwill returned to the same site the following year. It was assumed to be the same specimen, and it probably was, but this is not a certainty. The second year, the bird was banded, and it is certain that the poorwill Dr. Jaeger studied the subsequent two years was the same specimen.

The data recorded indicated a state of true hibernation, for during each season there was a slow and consistent loss of weight, and the cloacal temperature averaged about 65 degrees Fahrenheit, whereas the normal temperature for this species is about 106 degrees.

During this time, Jaeger learned that the Hopi Indian name for Nuttall's Poorwill, *Hölchko*, means "The Sleeping One", indicating a possible pre-Columbian understanding of the bird's habits among native Americans.

* * * * *

By October 16, 1804, Meriwether Lewis, William Clark and the "Corps Of Discovery" had reached a location on the Missouri River near the present community of Emmonsburg, North Dakota. On this particular day, as he often did, Lewis hiked a path parallel to the northern bank of the river. He glanced down to see in the trail, at his feet, a bird that neither flew nor scampered for shelter. In his daily log, Lewis identifies the bird as a "goatsucker", that is, a member of the Family Caprimulgidae, which includes poorwills, whip-poor-wills, nighthawks and European nightjars, birds that make their living by catching night-flying insects on the wing. Reaching down, he picked up the bird, and kept it for three days.

On the following day, Clark hiked the trail as Lewis commanded one of the canoes. Clark similarly came upon a bird he identified as a "whipperwill" (*sic*), and he too picked up the creature. We now know that both birds were specimens of Nuttall's Poorwill. It is obvious that these torpid birds that made no attempt to escape, were hibernating.

In his notes, Lewis states that when he picked up the bird, "It appeared to be passing into the dormant state". His log entry for Oct. 18:

"on (*sic*) the 18th the mercury was at 30^{a.o.} (above zero?) the bird could scarcely move. I run (*sic*) my penknife into its body under the wing and completely destroyed its lungs and heart yet it lived upwards of two hours. this fanominon (*sic*) I could

not account for unless it proceeded from want of circulation of the blood."

Lewis' impromptu experiment with the bird demonstrated the typical response given by a hibernating animal, including a marked decrease of blood circulation and respiration. Lewis weighed the bird and wrote a description of it, but he did not publish the description nor did he assign a scientific name for the bird later.

In view of the numerous plants and animals given their first scientific description by Meriwether Lewis during the expedition, it is difficult to understand why he did not describe the poorwill as a new species. Perhaps he did not realize it was new to science. Nuttall's Poorwill (*Phalaenoptilus nuttallii*), a close relative of the eastern whip-poor-will, was finally named and described in 1839 by John James Audubon.

In his book *The Natural History of the Lewis and Clark Expedition*, Raymond Darwin Burroughs suggests that if biologists had read the Journals of the Lewis and Clark Expedition, they would have known about hibernation in birds about 140 years before Jaeger discovered it in 1946. Jaeger was not aware of Lewis and Clark's historic precedence concerning hibernation of the poorwill. But according to Oscar Clarke, he was acquainted with Wilson C. Hanna, a resident of the Riverside/San Bernardino area. Hanna, a chemist for the Colton Portland Cement Company, was an avid oölogist. His outstanding collection of birds' eggs and nests is now held by the San Bernardino County Museum. In 1917, he published a paper in *The Condor* that deals with avian hibernation. During an extremely cold wave in January of 1913, Hanna removed eight white-throated swifts from a crevice in Slover Mountain (in Colton, CA) that "... seemed to be roosting in a dazed or numb state". According to Hanna, someone suggested to him that the birds were possibly hibernating. In his closing comment on the issue, Hanna says, "This raises a very interesting question, as it seems possible that these birds have intermittent hibernation periods. The facts are that these birds are not observed for many days in the coldest weather, yet are found to be plentiful within the rocks, in a dormant state".

In his article in *Desert Magazine* and in one of his papers in the scientific journal *The Condor*, Jaeger referred to several letters he had received after his first *Condor* paper and after his article in *The National Geographic Magazine*, in which writers related their experiences supporting the concept of hibernation in the poorwill. One correspondent was Aldous Huxley who related an experience when he and his brothers, during a winter vacation while in England, came upon an apparently hibernating European Nightjar, a bird in the same family as Nuttall's Poorwill. In 1950 Jaeger published a brief note in *The Condor* giving the basic details he had learned from Aldous Huxley.

Previously, in 1947, W.L. McAtee wrote a paper entitled "Torpidity in Birds" which was published in *The American Midland Naturalist*. McAtee cites 152 references, the earliest from 1495, with entries through each subsequent century, dealing with hibernation in birds, mostly swallows, chimney swifts, and cuckoos. One citation was a paper entitled "Temporary Poikilothermy in Birds", published in 1939 in the journal *Nature*, authored by J.S. Huxley (brother of Aldous), C.S. Webb and A.T. Best. When Aldous Huxley communicated with Dr. Jaeger, did he not inform Jaeger about his brother's paper? Perhaps not. Did Jaeger and Hanna, during their many visits, not discuss Hanna's experience with the hibernating white-throated swifts? Perhaps not. At least, until very recently, this would seem to be the case.

In their book *Son Of The Living Desert: Edmund C. Jaeger 1887-1983*, Ryckman and Zackrisson (1998) include verbatim a talk presented by Jaeger to the Fortnightly Club of Redlands, California, on March 29, 1973. Entitled "Long, Long Before Rip Van Winkle", the authors discovered this manuscript in the A.K. Smiley Library of Redlands, California (Call No. Fo 591.5 J17L). In addition to providing a current update to his colleagues concerning the scientific nature of hibernation, Jaeger included the following statement which perhaps somewhat clarifies his position on the issue at hand:

"It was until very recently stated that true hibernation, as

contrasted to short periods of diurnal torpidity, was known among every major group of animals except birds. So it was said even up to a very recent edition of the Encyclopedia Britannica and other major reference works, such as the 1950 edition of Chamber's Encyclopedia published in England. Incidentally, it may be said that a sort of hibernation had been suspected in birds, but no definite observations had been made.

"Wilson C. Hanna (who lived in Colton, California), during a cold spell in 1913 (one of Southern California's worst), found eight swifts in a crevice of Slover Mountain. He took them out of the crevice '... in a dazed and numb state'. He also found other birds in the rock crevices in the same torpid state. His conclusions, based only on these superficial observations were that '... it seemed possible that these birds may have intermittent hibernation because they did not appear flying about for many days during the coldest weather'.

As far as I can discover, this was the first and only occasion that Dr. Jaeger acknowledged Hanna's experience and knowledge relative to hibernation in birds. Even here, he does not mention Hanna's paper in "The Condor" that was published in 1917.

It seems strange to a biological scientist that Dr. Jaeger's writings about poorwill hibernation include no list of references nor indication that he reviewed the literature on the subject. It is possible that because of the novelty of his discovery he assumed that there was no literature to review. On the other hand, if he were aware of any of the literature, perhaps he thought it was merely anecdotal and not relevant to the scientific evidence that he was presenting. In the passage quoted above from "Long, Long Before Rip Van Winkle", Jaeger states that Hanna's conclusions were based solely on superficial evidence. He therefore could have reasoned it was not worthy of citation. In his Desert Magazine article, Jaeger stated that his work constituted the first concrete evidence for avian hibernation, and in general, the scientific community

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Jaeger, Edmund C. 1950. Record of the European Nightjar in a State of Stupor. *The Condor* 52(2):90-91

Jaeger, Edmund C. 1953. Poorwill Sleeps Away The Winter. *The National Geographic Magazine*. 103(2):273-280

Jaeger, Edmund C. 1954. On Desert Trails with a Naturalist. VII. Bird That "Sleeps" All Winter. *Desert Magazine* 17(11):21-22

Jaeger, Edmund C. 1973. "Long, Long Before Rip Van Winkle". A paper delivered to the Fort-nightly Club of Redlands, California, March 29, 1973. Manuscript. A.K. Smiley Library, Redlands, California. (Fo 591.5 J17L).

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